

REMARKS

Claims 1 through 45 and 47 through 51 remain in this application for active consideration. Claim 46 has been cancelled.

In the presently outstanding office action, claims 1 through 3, 5 through 10, 12, 13, 15, 16, 19 through 25, 43, 45, 46 and 48 through 51 were rejected under 35 U.S.C. § 102(b) as anticipated by WAUGH (US 4,936,045), claims 4, 11, 14, 27 and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over WAUGH, claims 26 and 29 through 35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over WAUGH and SCHAPIRO (US 4,618,346), claims 17, 18 and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over WAUGH and SCHAPIRO and further in view of SMIT (US 4,582,512), claims 33 through 35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over WAUGH and SCHAPIRO and SMIT and further in view of MASSEY (US 4,364,740), claims 29 through 31, 44 and 47 were rejected under 35 U.S.C. § 103(a) as being unpatentable over WAUGH and KINDIG (US 4,743,271) and claims 36 through 42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over WAUGH in view of KAMINO (US 4,424,062).. Applicants respectfully traverse the stated rejections and submit that in view of the foregoing amendments and the following remarks, claims 1 through 45 and 47 through 51 are patentable over the cited references and the application is otherwise in condition for allowance.

Regarding the rejections based on WAUGH, Claim 1 has been amended above so as to include the step of “subjecting the coal-containing fraction to a hydrothermal washing step in which the coal-containing fraction is mixed with water and a polar organic solvent or water and an organic acid under hydrothermal processing conditions to form a mixture.” The basis for this amendment can be found in paragraph [0096] of the specification. Accordingly, claim 1

now recites a demineralising process that consists of 3 main steps: 1) a caustic hydrothermal process (steps (a), (b) and (c)); 2) an acid wash (steps (d) and (e)); and 3) a hydrothermal wash of this pre-treated coal using either a polar organic solvent or an organic acid steps (f) and (g)).

The examiner has rejected claim 1 as being anticipated by WAUGH, but WAUGH does not, however, disclose a final hydrothermal washing step in which the coal-containing fraction is mixed with water and a polar organic solvent or water and an organic acid to form a mixture. While WAUGH may disclose washing the acidified coal using an organic acid as an option for lowering the pH of an acid wash solution (col. 5, ll. 21-35), it simply does not disclose a hydrothermal process. In comparison to claim 1 of the current application, WAUGH thus only discloses a 2-step approach, and not a 3-step approach as described above.

Applicant further asserts that none of the other prior art cited discloses or suggests such a 3-step approach wherein the third step includes a hydrothermal washing step, and wherein the hydrothermal washing step includes mixing the coal with water and a polar organic solvent or water and an organic acid. This 3-step approach is required in order to achieve an ash content as low as 0.01-0.2%, with the added advantage of lower sodium levels, because the two initial steps are required to pre-treat the coal before a hydrothermal washing step. The pre-treatment results in the conversion and solution of minerals in the coal, whereas the third step removes the minerals from the coal that cannot be removed in the pre-treatment. For this reason the third step must be a hydrothermal washing step to improve the dissolution, and must include a polar organic solvent or organic acid in order to remove the remaining impurities.

In view of the foregoing discussion, it is clear that independent claim 1 defines patentably over WAUGH. And since all of the other remaining claims depend either directly or

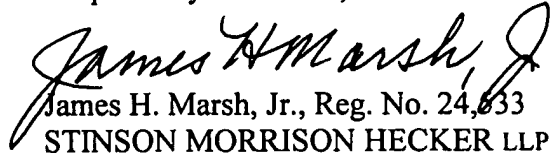
indirectly from claim 1, it is clear that these claims also are patentable over WAUGH for the same reasons.

Regarding the other references cited by the Examiner in the outstanding action, not one of the same discloses the novel three step process recited in claim 1. *Per contra*, SCHAPIRO describes a 2-step process comprising wetting and leaching, not a 3-step process; SMIT describes a 3-step process comprising caustic pressure leaching, hydrochloric acid leaching, and pressure leaching with aqueous ammonia, but the third step of SMIT is not performed with water and a polar organic solvent or water and an organic acid; MASSEY describes a 2-step process comprising comminuting coal with an alcohol and expanding the slurry in the presence of a sulphur scavenger compound; KINDIG describes a 3-step process comprising hydrofluoric acid leaching, followed by hydrochloric acid leaching, and finally regenerating acid by using sulphurdioxide, oxygen and water vapour, but again, KINDIG does not include a third step that comprises a hydrothermal washing step in which the coal-containing fraction is mixed with water and a polar organic solvent or water and an organic acid to form a mixture; KAMINO describes a single chemical step comprising aqueous deashing with hydrochloric acid or citric acid, and acidic ammonium fluoride so it clearly does not include a step that comprises a hydrothermal washing step in which the coal-containing fraction is mixed with water and a polar organic solvent or water and an organic acid to form a mixture. Accordingly, it is manifest that no one of the prior art documents cited by the examiner, either on its own or in combination with another of the cited references, anticipates claim 1 of the current invention or renders the same obvious.

In view of the foregoing amendments and remarks, it is respectfully submitted that the claims are free of the cited prior art and that the application is in condition for allowance.

Accordingly, favorable action at an early date will be appreciated. If the examiner is of the view that any issue remains unresolved, it is respectfully suggested that applicants' undersigned attorney may be contacted at the telephone number set forth below.

Respectfully submitted,


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